

Measure E Board Hearing

August 30, 2016

Presented by the El Dorado County Chief Administrative Office,
County Counsel, and Community Development Agency

Agenda

1. Staff presentation
 - Highway 50 Level of Service
 - Resolution Adopting Interim Interpretive Guidelines
 - Next Steps
2. Board initial discussion and Q & A
3. Receive and consider public comment
4. Board discussion and deliberation
5. Board to consider adopting interim interpretive guidelines
6. Board to discuss next steps

Highway 50 Level of Service

Two points that need clarification

- Travel Demand Model's (TDM) role
- Caltrans LOS determination

TDM's role in determining LOS

- The TDM is a tool used to estimate future traffic volumes. The TDM does not directly calculate LOS.
- **Current LOS**
 - TDM plays no role whatsoever in determining current LOS.
 - As required by the General Plan, staff uses procedures and methodologies specified in Highway Capacity Manual (HCM).
 - Key data sources: traffic counts and/or Caltrans' PeMS data.
- **Future LOS**
 - As required by the General Plan, staff uses procedures and methodologies specified in the HCM.
 - Key data source: TDM estimates future traffic volumes.

County General Plan - LOS generally defined as follows:

- LOS A represents free-flow travel with an excellent level of comfort and convenience and the freedom to maneuver.
- LOS B has stable operating conditions, but the presence of other road users causes a noticeable, though slight, reduction in comfort, convenience, and maneuvering freedom.
- **LOS C** has stable operating conditions, but the **operation of individual users is significantly affected** by the interaction with others in the traffic stream.
- **LOS D** represents high-density, but stable flow. **Users experience severe restriction in speed and freedom to maneuver, with poor levels of comfort and convenience.**
- **LOS E** represents operating conditions at or near capacity. **Speeds are reduced to a low but relatively uniform value.** Freedom to maneuver is difficult with **users experiencing frustration and poor comfort and convenience.** Unstable operation is frequent, and minor disturbances in traffic flow can cause breakdown conditions.
- LOS F is used to define forced or breakdown conditions. This condition exists wherever the volume of traffic exceeds the capacity of the roadway. Long queues can form behind these bottleneck points with queued traffic traveling in a stop-and-go fashion.

Caltrans Highway 50 current LOS determination

- Caltrans' *Transportation Concept Report and Corridor System Management Plan, United States Route 50 (TCR/CSMP)*, dated June 2014, states that **westbound Highway 50 currently operates at LOS F in the AM peak hour** at the County Line.
- How did they reach this LOS conclusion?

Caltrans Highway 50 current LOS determination

- In April 2015, Caltrans staff provided the Highway Capacity Software (HCS) output with the inputs and assumptions Caltrans used in the Highway 50 TCR/CSMP.
- Caltrans staff analyzed LOS based on traffic volumes in their “Count Book” (*Traffic Volumes on California State Highways*).
- Caltrans’ Count Book indicates that the peak hour two-way volume at the County line is **8,600 vehicles**. The Count Book’s volume for this segment **has not changed in seven years** (2008-2014) although observed volumes changed significantly.
- The Count Book does not indicate which direction (eastbound or westbound) is the peak direction or which peak hour (AM or PM) is the peak hour.
- Caltrans assumed 65% of traffic is travelling in the peak direction and ~1,000 vehicles travel in the HOV lane. **According to these assumptions, the peak hour volume would be 4,590 vehicles** in the peak direction in the general purpose lanes.

Phone: _____ Fax: _____
 E-mail: _____

-----Operational Analysis-----

Analyst: Jas
 Agency or Company: Caltrans
 Date Performed: 3/11/2014
 Analysis Time Period:
 Freeway/Direction: US 50
 From/To: SEG 8R
 Jurisdiction: ED County
 Analysis Year: 2012 Base
 Description: CSMP/TCR 50

-----Flow Inputs and Adjustments-----

Volume, V	4590	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	1221	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.943	
Driver population factor, fp	1.00	
Flow rate, vp	2588	pc/h/ln

-----Speed Inputs and Adjustments-----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

-----LOS and Performance Measures-----

Flow rate, vp	2588	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	47.7	mi/h
Number of lanes, N	2	
Density, D	54.3	pc/mi/ln
Level of service, LOS	F	

Comment Submitted by Measure E Committee on 8.9.16

Implementation Statement 8:

We disagree with Staff's conclusion that Implementation Statement 8 is inconsistent with the General Plan. Both CalTrans and the County use the Highway Capacity Manual (HCM) to determine Level of Service (LOS), meaning they use the same methodology. Implementation Statement 8 does not change that methodology. It only requires that the County use the Highway 50 traffic data from CalTrans because CalTrans has live traffic counts from their highway sensors. It isn't optional to include the CalTrans data as part of the implementation. The voters knew that the Implementation language was part of the initiative when they signed petitions and then voted for Measure E. It is at the heart of the initiative, a clear mandate from the voters, and must be included. This is what people voted on and what they expected. The Measure E committee would like to work with staff to implement this policy as intended by the will of the people.

County Highway 50 current LOS determination

- In a letter dated May 5, 2015, Caltrans supplied the Spring (March – May)/Fall (September – October) 2010 and 2012 peak hour volumes from PeMS for the Highway 50 segment between El Dorado Hills Blvd. and the County line.
- County staff ran the Highway Capacity Software (HCS) 2010 for the Basic Freeway Segment Operational Analysis with **inputs and assumptions identical to those used by Caltrans for the 2014 TCR/CSMP, changing only the volume input to volumes counted by Caltrans' PeMS** (which is consistent with Measure E proponents' request from 8.9.16 Board workshop).
- If Caltrans' analysis conducted for the TCR/CSMP is replicated precisely, only changing the volume to reflect Caltrans' traffic counts, this analysis would conclude that **Highway 50 operates at LOS C or D.**
- The only scenario that leads to LOS F is using the volume derived from Caltrans' Count Book, **which is ~ 50% higher than the single highest peak hour in the entire Spring/Fall as counted by Caltrans' PeMS.**

Phone: _____ Fax: _____
 E-mail: _____

----- Operational Analysis -----

Analyst: NKP
 Agency or Company: CDA
 Date Performed: 4/16/2015
 Analysis Time Period: AM Peak Hr
 Freeway/Direction: US 50 WB
 From/To: EDH-Latrobe/Countyline
 Jurisdiction: EDC
 Analysis Year: 2010
 Description: EDC 2010 General Purpose with HOV lanes

Yellow highlighting indicates input variables

----- Flow Inputs and Adjustments -----

Volume, V	2860	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	761	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.943	
Driver population factor, fp	1.00	
Flow rate, vp	1613	pc/h/ln

Blue highlighting indicates output values (calculated by HCS software)

----- Speed Inputs and Adjustments -----

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

----- LOS and Performance Measures -----

Flow rate, vp	1613	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	68.0	mi/h
Number of lanes, N	2	
Density, D	23.7	pc/mi/ln
Level of service, LOS	C	



Phone: _____ Fax: _____
 E-mail: _____

Operational Analysis

Analyst: NKP
 Agency or Company: CDA
 Date Performed: 4/16/2015
 Analysis Time Period: AM Peak Hr
 Freeway/Direction: US 50 WB
 From/To: EDH-Latrobe/Countyline
 Jurisdiction: EDC
 Analysis Year: 2010
 Description: Caltrans Highest PeMS (Spring/Fall)

Flow Inputs and Adjustments

Volume, V	3348	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	890	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	1816	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1816	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	65.6	mi/h
Number of lanes, N	2	
Density, D	27.7	pc/mi/ln
Level of service, LOS	D	

Phone: _____ Fax: _____
 E-mail: _____

Operational Analysis

Analyst: NKP
 Agency or Company: CDA
 Date Performed: 4/13/2015
 Analysis Time Period: AM Peak Hr
 Freeway/Direction: US 50 WB
 From/To: EDH-Latrobe/Countyline
 Jurisdiction: EDC
 Analysis Year: 2012
 Description: Caltrans Highest PeMs (Spring/Fall 2012)

Flow Inputs and Adjustments

Volume, V	3393	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	902	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.943	
Driver population factor, fp	1.00	
Flow rate, vp	1913	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	70.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

LOS and Performance Measures

Flow rate, vp	1913	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	64.1	mi/h
Number of lanes, N	2	
Density, D	29.8	pc/mi/ln
Level of service, LOS	D	

Phone: _____ Fax: _____
 E-mail: _____

_____ Operational Analysis _____

Analyst: NKP
 Agency or Company: CDA
 Date Performed: 4/16/2015
 Analysis Time Period: AM Peak Hr
 Freeway/Direction: US 50 WB
 From/To: EDH-Latrobe/Countyline
 Jurisdiction: EDC
 Analysis Year: 2014
 Description: Highest PeMS (Spring/Fall)

_____ Flow Inputs and Adjustments _____

Volume, V	3012	veh/h
Peak-hour factor, PHF	0.94	
Peak 15-min volume, v15	801	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Rolling	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	2.5	
Recreational vehicle PCE, ER	2.0	
Heavy vehicle adjustment, fHV	0.943	
Driver population factor, fp	1.00	
Flow rate, vp	1698	pc/h/ln

_____ Speed Inputs and Adjustments _____

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
EFS or BFFS	70.0	mi/h
Lane width adjustment, FLW	-	mi/h
Lateral clearance adjustment, FLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	70.0	mi/h

_____ LOS and Performance Measures _____

Flow rate, vp	1698	pc/h/ln
Free-flow speed, FFS	70.0	mi/h
Average passenger-car speed, S	67.1	mi/h
Number of lanes, N	2	
Density, D	25.3	pc/mi/ln
Level of service, LOS	C	

**Table 2 - Results of Basic Freeway Segment LOS Operational Analysis
U.S. Highway 50 Westbound - El Dorado Hills Blvd./Latrobe Road to County line**

Year	Volume	Source ¹	Density	LOS	Notes
2010	2,860	PeMS (March 2010)	23.7	C	(E. of Scott Road mainline Station 316993) Initial volumes used in RDEIR ² (total of general purpose lanes and HOV lane volume)
2010	2,955	PeMS	24.7	D	Updated volume used in FEIR ³ based on Caltrans comment letter (see discussion below)
Unknown	3,200	Unknown	27.4	D	Caltrans recommended volume for segment (Caltrans' May 5, 2015 letter)
2010	3,348	PeMS (4-15-10)	29.3	D	Caltrans supplied PeMS data (highest 2010 Spring/Fall volume)
2012	3,393	PeMS (5-15-12)	29.8	D	Caltrans supplied PeMS data (highest 2012 Spring/Fall volume)
2014	3,012	PeMS (9-8-14)	25.3	C	Highest 2014 Spring/Fall volume
2011	4,590	Caltrans 2011 Count Book	54.3	F	Caltrans volume used in various State Reports. Count Book does not specify direction or peak hour. Analysis assumes westbound AM peak hour.
2011	4,590	Caltrans 2011 Count Book	25.8	C	Caltrans volume used in various State Reports. Count Book does not specify direction or peak hour. Analysis assumes eastbound PM peak hour.

Notes: All calculations used the same peak hour factor, terrain type, % trucks, Driver Population factor, and flow rate as the Caltrans analysis.

¹ All PeMS data came from the "W. of Latrobe" Mainline Station 316653 for the general purpose lanes during the AM Peak Hour (7:00 AM – 7:59 AM), consistent with Caltrans methodology, unless otherwise noted.

² Recirculated Draft Environmental Impact Report (RDEIR) for the Targeted General Plan Amendment – Zoning Ordinance Update (TGPA-ZOU).

³ Final Environmental Impact Report (FEIR) for the TGPA-ZOU.

Highway 50 LOS Summary

- Determining current LOS is based on traffic counts and/or PeMS data; the TDM has nothing to do with determining current LOS.
- Caltrans' LOS determination is clearly based on inflated volume numbers from Caltrans' Count Book, which are ~50% higher than Caltrans' actual count traffic data.
- Replicating Caltrans' analysis precisely, changing only the volume number to the single highest peak hour in the entire Spring/Fall as counted by Caltrans' PeMS, results in a current LOS of C or D.
- Caltrans determines future LOS by taking their current inflated volume and "growing" it into the future; since the current volume is inflated, the forecasted future volume and LOS is also inflated.
- Relying on demonstrably inaccurate information for the TIM Fee nexus study would significantly jeopardize the County's ability to establish a legally-justifiable nexus pursuant to Government Code 66000/Mitigation Fee Act.
- Conditioning projects based on demonstrably inaccurate information leaves the County vulnerable to claims of excessive mitigation requirements above what are allowed by law (i.e. that exceed "rough proportionality" and "nexus" doctrines).

Statements Under the Heading “Implementation”

Implementation Statement 8: “LOS traffic levels on Highway 50 on-off ramps and road segments shall be determined by Caltrans and fully accepted by the County for traffic planning purposes.”

Existing Policy TC-Xd: Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural Regions except as specified in Table TC-2. The volume to capacity ratio of the roadway segments listed in Table TC-2 shall not exceed the ratio specified in that table. Level of Service will be as defined in the latest edition of the Highway Capacity Manual (Transportation Research Board, National Research Council) and calculated using the methodologies contained in that manual. **Analysis periods shall be based on the professional judgment of the Department of Transportation which shall consider periods including, but not limited to, Weekday Average Daily Traffic (ADT), AM Peak Hour, and PM Peak hour traffic volumes.**

Resolution adopting Interim Interpretive Guidelines

- Interpret TC-Xa 3 under accepted principles of statutory construction such that conditions of approval that require construction of road improvements under Policy TC-Xf, as revised by Measure E, will satisfy the requirements of TC-Xa 3.
- Interpret TC-Xa 4 to define “County tax revenues” as follows: “Any tax revenue collected directly by the County or would otherwise be directly collected by the County that can be used at the County’s discretion.”
- Interpret TC-Xa 6 in the same manner that Policy 10.2.2.3 has been interpreted, which is to say that fees created, collected and expended in compliance with the Mitigation Fee Act will satisfy the requirements of TC-Xa 6 and Policy 10.2.2.3.
- Interpret TC-Xg so that the County is not precluded from entering into reimbursement agreements, which remain necessary to implement the General Plan, including Measure E’s policy changes, without violating State law.

Resolution adopting Interim Interpretive Guidelines

- Interpret TC-Xf under accepted principles of statutory construction to require conditions of approval on discretionary projects as follows:
 - Single family residential subdivisions of five or more parcels that worsen traffic on the County road system must (1) construct all necessary road improvements based on existing traffic plus traffic generated from the development plus forecasted traffic growth at 10-years from project submittal and (2) pay all applicable TIM Fees to address cumulative impacts.
 - All other discretionary projects that worsen traffic on the County road system must (1) construct all necessary road improvements based on existing traffic plus traffic generated from the development and (2) pay all applicable TIM Fees to address cumulative impacts.
- Insert footnote 1: “Measure E, effective 7/29/16 extends indefinitely Policies TC-Xa, TC-Xf, TC-Xg, and Table TC-2.”
- Insert footnote 2: Measure E, effective 7/29/16, inadvertently left out the word “design” from TC-Xg. The word “design” is therefor considered to be within the adopted General Plan and is not removed.

Next Steps

- Capital Improvement Program (CIP) and Traffic Impact Mitigation (TIM) Fee Update
- Missouri Flat Master Circulation and Funding Plan (MC&FP)
- Housing Element
- Other
 - Future GPAs?
 - Check back in with Board regarding Interim Interpretive Guidelines in 6-12 months?